

In the Claims:

This listing of claims will replace all prior version, and listings, of claims in the application.

1. (Currently Amended) A method for correlating an input signal, ~~the input signal~~ compliant with at least one specification selected from IEEE 802.11a WLANs and HIPERLAN/2, with a sequence of alternative correlator coefficients, ~~each an~~ alternative sequence associated with a specified non-negative integer n , the method comprising the steps of:

digitally sampling the input signal to generate a plurality of real signal digital samples and a plurality of imaginary signal digital samples, wherein the input signal is compliant with at least one specification selected from IEEE 802.11a WLANs or HIPERLAN/2;

scaling the plurality of real signal digital samples in accordance with a selected sequence of alternative correlator coefficients to generate a plurality of scaled real signal samples;

scaling the plurality of imaginary signal digital samples in accordance with the selected sequence of alternative correlator coefficients to generate a plurality of scaled imaginary signal samples; and

combining, in accordance with a specified correlator form, a first subset of the plurality of scaled real signal samples and a second subset of the plurality of scaled imaginary signal samples to generate at least one correlator output signal.

2. (Currently Amended) The method of claim 1 wherein a correlator coefficient value of 0 for a digital sample is implemented in the scaling steps of the plurality of imaginary samples by not using the digital sample in the combining step of the first and second subsets.
3. (Currently Amended) The method of claim 1 wherein a -1 correlator coefficient value for a digital sample is implemented in the scaling steps of the plurality of imaginary samples by inverting the digital sample in the combining step of the first and second subsets.
4. (Currently Amended) The method of claim 1 wherein a correlator coefficient value of 0.5 for a digital sample is implemented in the scaling steps of the plurality of imaginary samples by shifting the digital sample in a shift register prior to the combining step of the first and second subsets.
5. (Currently Amended) The method of claim 1 wherein imaginary and real signal digital samples are handled in separate data streams prior to the combining step of the first and second subsets.
6. (Currently Amended) The method of claim 1 wherein a digital sample is detected at ~~the input to~~ a storage location.
7. (Previously presented) The method of claim 1 wherein one or more of a first plurality of storage locations, having at least one real signal digital sample, and a second plurality of

storage locations, having at least one imaginary signal digital sample, are connected together as a shift register.

8. (Currently Amended) The method of claim 1 wherein the sequence of alternative correlator coefficients ~~are~~comprise members of the group consisting of $\{-1, -1 + 2^{-n}, -1 + 2 \times 2^{-n}, -1 + 3 \times 2^{-n}, \dots, 1\}$.

9. (Currently Amended) The method of claim 1 wherein the specified correlator form ~~is~~comprises $\Xi_n = \sum_{m=1}^{16} r_{n-16+m} a_m$ wherein furthermore a_m is the scaling factor for signal sample

r_{n-16+m} .

10. (Currently Amended) The method of claim 8, wherein the integer n is chosen from the group consisting of 0, 1, ~~and~~or 2, and n selects the sequence of alternative correlator coefficients.

11. (Currently Amended) The method of claim 1 wherein the sampling ~~step~~ is applied to an in-phase part of a baseband signal to generate the plurality of real signal digital samples.

12. (Currently Amended) The method of claim 1 wherein the sampling ~~step~~ is applied to a quadrature-phase part of a baseband signal to generate the plurality of imaginary signal digital samples.

13. (Currently Amended) An apparatus ~~that~~to generates a correlation signal from a plurality of streams of input signal samples, the apparatus comprising:

at least one digital signal processor, ~~each processor, having a plurality of inputs and at least one output, that~~to performs all of the operations from the group consisting of bitwise scaling, addition, time-wise shifting, ~~and~~or inversion on one or more of two streams from the plurality of streams and on a current value of a sample from the plurality of streams of samples; and

an adder ~~that~~to adds the outputs signals of the processor ~~first~~ to generate a first correlation signal wherein ~~each~~a processor bitwise scaling operation depends on a set of correlator values that generate the first correlation signal ~~complaint~~compliant with either HIPERLAN/2 or IEEE 802.11a WLAN specifications.

14. (Currently Amended) The apparatus of claim 13, further comprising a shift register ~~that~~to stores samples from a stream in the plurality of streams as finite-precision numbers.

15. (Canceled).

16. (Currently Amended) An apparatus as set forth in claim 13, wherein furthermore, the adder to ~~receives as input,~~ outputs signals from two processors, and ~~each~~the processors in turn, are to performs operations on ~~only~~ one stream.

17. (Canceled).

18. (Currently Amended) The apparatus of claim 13, wherein each processor has one output signal and a number of inputs signals selected from the group consisting of 5, 7 and/or 9.

19 -21. (Canceled).

22. (Currently Amended) A method for correlating a complex-valued received signal samples with a 16-point waveform, to produce a complex-valued correlation result signal at ~~about each sampling instant, wherein the complex-valued received signal samples and the 16-point waveform are compliant with IEEE 802.11a WLANs or HIPERLAN/2~~, the method comprising ~~the steps of:~~

selecting a 16-point waveform representation from the group consisting of waveform representation $\{-1, 0, 1, 1, 1, 0, -1, 0, -1, 1, 1, 0, 0\}$, waveform representation $\{0.5, 0.5i, 1, 0.5i, 1, 0.5i, -0.5, 0, 0.5i, -0.5, -1, -0.5i, -1, -0.5, 0.5i, 0\}$, or waveform representation $\{0.5, 0.5i, 1, 0.5, 1, 0.5i, -0.5, 0.5-0.5i, 0.5i, -0.5, -1, -0.5i, -1, -0.5, 0.5i, 0.5 - 0.5i\}$;

splitting a received signal into a plurality of streams;

storing, in a shift register, signal samples from at least one signal stream;

scaling, in accordance with a selected 16-point representation, at least one stored signal sample ~~samples~~ by an operation from the group consisting of inverting and/or shifting;

processing, in accordance with a selected 16-point representation, the at least one stored signal sample by adding it to at least one other signal sample from the plurality of streams to produce a first interim output signal; and

generating the complex valued correlation result signal by combining the first interim output signal with a second interim output signal, wherein the complex valued correlation result signal is compliant with IEEE 802.11a WLANs or HIPERLAN/2.

23. (Currently Amended) The method of claim 22 wherein the at least one other signal sample is scaled prior to the processing at least one signal sample step.

24. (Currently Amended) The apparatus of claim 13, wherein the set of correlator values is selected from a group of sets consisting of $\{-1, 0, 1, 1, 1, 0, -1, 0, i, 0, -i, -i, -i, 0, i, 0\}$, $\{-0.5, 0.5i, 1, 0.5, 1, 0.5i, -0.5, 0, 0.5i, -0.5, -i, -0.5i, -i, -0.5, 0.5i, 0\}$, and/or $\{-0.5, 0.5i, 1, 0.5, 1, 0.5i, -0.5, 0.5-0.5i, 0.5i, -0.5, -i, -0.5i, -i, -0.5, 0.5i, 0.5 - 0.5i\}$.

25. (Currently Amended) A receiver ~~compliant with the IEEE 802.11a WLANs or HIPERLAN/2 specifications~~, comprising:

at least one digital signal processor, ~~each having a plurality of inputs and at least one output, that~~ to performs at least one operation from the group consisting of scaling, addition, shifting, or ~~and~~ subtraction on one or more streams from a plurality of streams of samples and on a current value of a stream of samples from the plurality of streams of samples; and

an adder ~~that adds to~~ add at least one output signal of the processor to generate a first correlation signal compliant with the IEEE 802.11a WLANs or HIPERLAN/2 specifications.